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Miller et al.

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[54] FERRIC IRON REMOVAL FROM ALUMINUM FLUORIDE SOLUTIONS

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Related U.S. Application Data

[63] Continuation-in-part of Ser. No. 685,327, May 11, 1976, abandoned, which is a continuation-in-part of Ser. No. 496,577, Aug. 12, 1974, Pat. No. 3,961,030.

[51] **Int. Cl.**[2] **C01G 49/10**; C01F 7/22

[52] **U.S. Cl.** **423/112**; 423/132; 423/139; 423/626; 423/484; 423/126

[58] **Field of Search** 423/112, 126, 132, 139, 423/150, 483, 488, 489, 658.5, 484, 626

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[57] **ABSTRACT**

A process for the selective separation of ferric iron from an aluminum fluoride aqueous solution containing ferric iron is effected by contacting said solution with an organic extractant phase consisting essentially of a mixture of a mono (higher alkyl-substituted phenyl) phosphoric acid and a di(higher alkyl-substituted phenyl) phosphoric acid dissolved in an inert diluent to thereby transfer the ferric iron to said organic extractant phase. The efficiency of the process is further improved by adjusting the aluminum fluoride aqueous feed solution to a temperature in the range of about 140° F. to about 175° F. prior to contacting it with the organic extractant phase, maintaining the temperature within this range throughout the ferric iron extraction stage or stages, then heating the resulting iron-depleted aqueous raffinate to a temperature higher than 195° F., and then crystallizing aluminum fluoride trihydrate out of the raffinate at this higher temperature.

11 Claims, 2 Drawing Figures